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10/553,928	10/20/2005	Andreas Meinke	SONN:079US	5881

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EXAMINER	
PORTNER, VIRGINIA ALLEN	
ART UNIT	PAPER NUMBER
1645	

MAIL DATE	DELIVERY MODE
02/26/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/553,928	MEINKE ET AL.	
	Examiner	Art Unit	
	GINNY PORTNER	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 December 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *38, 47, 49-60* is/are pending in the application.

4a) Of the above claim(s) *47 and 55-60* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *38,49-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 38, 47, 49-60 are pending. Claims 47 and 55-60 are withdrawn. Claim 47 should be labeled (withdrawn, currently amended)

Objections/Rejections Withdrawn

Claim Objections

1. Withdrawn, Claims 38-46 and 49-54 objected to because of the following informalities:
2. Withdrawn,Claims 38-46 and 49-54 recite the indefinite article "an amino acid sequence", but this objection has been obviated by claim amendments to recite "and comprising amino acids" which is a phrase defining definite sequences that can be in the claimed composition
3. Withdrawn,Claims 38-46 and 49-54 objected to for reciting a plurality of unelected inventions, has been obviated by claim amendments to recite the elected invention
4. Withdrawn, claim canceled, Claim 39 objected to for reciting claim limitations directed to Tables 1 & 3; the claims should recite SEQ ID NOs.

Specification

5. Withdrawn, The abstract of the disclosure is not objected to because the abstract was published in a PCT application in accordance with MPEP § 608.01(b), and submitted herein.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Withdrawn, claims 38-44 now no longer directed to a product of nature in light of the fact that the claimed antigens are isolated and claimed as a composition; the claimed invention is directed to statutory subject matter.

Claim Rejections - 35 USC § 102

8. Withdrawn, Claims 38-39, 41-43 rejected under 35 U.S.C. 102(e) as being anticipated by Ludevid et al (US Pat. 7297847) is herein withdrawn, in light of the cancellation of some claims, and the extensive amendment of other claims to no longer read on the fragment amino acid sequences disclosed in Ludevid et al.

Response to Arguments

9. Applicant's arguments filed December 10, 2008 have been fully considered but they are not persuasive.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. Maintained, Claims 38 and 49-54 are rejected under 35 U.S.C. 112, first paragraph (SCOPE) because the specification, while being enabling for antigenic fragments for detection of antibodies in a biological sample and immunogenic compositions that comprise immunogenic fragments of SEQ ID NO 288 for stimulation of an immune response, does not reasonably provide enablement for make and use any composition that comprises an immunogen to serve as a vaccine (instant claim 45) that will treat or prevent Helicobacter pylori infection (see instant claim 54). The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. The scope of enablement rejection was traversed on the grounds that the instant Specification teaches how to make and use the claimed compositions that comprise immunogenic fragments of SEQ ID NO 288.

12. The examiner agrees that the instant Specification teaches how to make and use **immunogenic compositions**, but does not show, nor provide evidence that the claimed compositions that comprise a single epitope can serve as a pharmaceutical composition to treat or prevent infection by any pathogen, to include Helicobacter, nor to function as a vaccine for Helicobacter.

13. Applicant states that antibodies found in patients (Remarks submitted 12/10/2008, page 5, paragraph 2) infected by Helicobacter are immunoreactive with epitopes present in the protein represented by SEQ ID NO 288

14. The examiner noted that the antibodies were obtained from a subject infected with Helicobacter, so the claimed protein/fragments are immunogenic but not protective against infection. The scope of enablement is maintained for reasons of record and responses set forth herein. Amendment of the claims to recite ----immunogenic composition--- would be

commensurate in scope with Applicant's traversal and could obviate this rejection; claims 53 and 54 should not recite the term "vaccine".

Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

16. Maintained. Claim 38 rejected under 35 U.S.C. 102(b) as being anticipated by Tomb et al (1997, reference of cited on US PTO 1449 and International Search Report) is traversed on the grounds that:

17. Tomb et al does not provide an enabling disclosure of the claimed composition, and assets Tomb et al does not provide any data demonstrating the sequences may be useful for drug discovery and vaccine development, and there is no discussion of the protein as a component of a pharmaceutical composition.

18. It is the position of the examiner that Tomb et al discloses an isolated protein described as a "sideophore-mediated iron transport protein". The isolated protein, HP1341, was characterized

as a transport protein, and therefore was formulated into a composition for analysis. Amended claim 38 only comprises the protein of SEQ ID NO 288; the composition of Tomb et al comprises the same component as Applicant's independent claim.

19. With respect to data and discussion of the protein's functional characteristics, it is the position of the examiner that "A chemical composition and its properties are inseparable." Therefore, since the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). See MPEP 2112.01."

20. Tomb et al clearly names HP1341 which shares 100% identity with instantly claimed SEQ ID NO 288. A genus does not always anticipate a claim to a species within the genus. However, when the species is clearly named, the species claim is anticipated no matter how many other species are additionally named. Ex parte A, 17 USPQ2d 1716 (Bd. Pat. App. & Inter. 1990) (The claimed compound was named in a reference which also disclosed 45 other compounds. The Board held that the comprehensiveness of the listing did not negate the fact that the compound claimed was specifically taught.) Tomb et al still anticipates the instantly claimed invention as now claimed.

21. Inherently the reference anticipates the now claimed invention. Atlas Powder Co. V IRECA, 51 USPQ2d 1943, (FED Cir. 1999) states Artisans of ordinary skill may not recognize the inherent characteristics or functioning of the prior art...However, the discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior arts functioning, does not render the old composition patentably new to the discoverer. The Court further held that this same reasoning holds true when it is not a property but an ingredient which is inherently contained in the prior art.

22. Maintained, The rejection of claims 38, 49, 53-54 under 35 U.S.C. 102(b) as being anticipated by WO2002/66501, Legrain et al is traversed on the grounds that Legrain et al does not provide an enabling disclosure of the claimed composition, and assets Tomb et al does not discuss the product of HPO406 in vaccine development,

23. It is the position of the examiner that Legrain et al (WO2002/66501) do disclose an isolated protein antigen of Helicobacter pylori that shares 100% identity to an amino acid sequence that comprises amino acids 199-205, 222-229, 236-244, 250-267 of SEQ ID NO:288, which is a receptor binding fragment of HP1341 (see Legrain et al claim 6, page 477, WO 501's SEQ ID No 3186) which shares 100% sequence identity over 119 amino acids with SEQ ID No 288. Claiming the product clearly shows the disclosed antigen to be considered to be apart of the invention of Legrain et al. The disclosure of Legrain et al teaches polypeptide/protein formulated into a pharmaceutical composition (see page 32, lines 24-28, and page 31, lines 20-242) together with an immunostimulatory adjuvant (see page 31, lines 4-8 "any pharmaceutically acceptable carrier or adjuvant can be used in the pharmaceutical composition"; page 32, line 27 and page 60, line 3 and lines 25-26 "complexes conjugated to keyhole limpet hemocyanin").

24. While specific functional characteristics, such as being a hyperimmune serum reactive antigen, are not disclosed, the chemical structure of the antigen/immunogenic polypeptide comprises amino acids 150 to 268 of HP1341, with 100% identity to Applicant's SEQ ID NO 288 over 119 consecutive amino acids.

25. "A chemical composition and its properties are inseparable." Therefore, since the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). See MPEP 2112.01."

26. Therefore the antigen of Legrain et al would inherently have the same or equivalent biological characteristics based upon having the identical biochemical structure of the instantly claimed fragments.

Atlas Powder Co. V IRECA, 51 USPQ2d 1943, (FED Cir. 1999) states Artisans of ordinary skill may not recognize the inherent characteristics or functioning of the prior art...However, the discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior arts functioning, does not render the old composition patentably new to the discoverer. □The Court further held that □this same reasoning holds true when it is not a property but an ingredient which is inherently contained in the prior art. There is no requirement that a person of ordinary skill in the art would have recognized the inherent disclosure at the time of invention, but only that the subject matter is in fact inherent in the prior art reference. Schering Corp. v. Geneva Pharm. Inc., 339 F.3d 1373, 1377, 67 USPQ2d 1664, 1668 (Fed. Cir. 2003) (rejecting the contention that inherent anticipation requires recognition by a person of ordinary skill in the art before the critical date and allowing expert testimony with respect to post-critical date clinical trials to show inherency); see also Toro Co. v. Deere & Co., 355 F.3d 1313, 1320, 69 USPQ2d 1584, 1590 (Fed. Cir. 2004). "[T]he fact that a characteristic is a necessary feature or result of a prior-art embodiment (that is itself sufficiently described and enabled) is enough for inherent anticipation, even if that fact was unknown at the time of the prior invention."); Abbott Labs v. Geneva Pharms., Inc., 182 F.3d 1315, 1319, 51 USPQ2d 1307, 1310 (Fed.Cir.1999).

27. Maintained, The rejection of claims 38, 49-50, 53-54 under 35 U.S.C. 102(b) as being anticipated by WO98/43478, Kleanthous et al is asserted that SEQID NO 118 does not anticipate the claims because there does not appear to be any significant similarity between the sequence of Kleanthous et al and the sequence of the instantly claimed protein.

28. In response to Applicant's remarks, the examiner is providing sequence alignments for both SEQ ID NO 228 and 118 of Kleanthous et al as compared to instantly claimed SEQ ID NO 288. SEQ ID NO 118 of Kleanthous is compared to the back translation of instant SEQ ID NO 110 recited in the claims which encodes SEQ ID NO 288.

```
AAW98314
ID   AAW98314 standard; protein; 285 AA.
XX
AC   AAW98314;
XX
DT   15-JUN-2007  (revised)
DT   31-MAR-1999  (first entry)
XX
DE   H. pylori GHP0 894 protein.
XX
KW   GHP0 protein; Helicobacter infection; gastroduodenal disease; gastritis;
KW   peptic ulcer disease; BOND_PC;
KW   siderophore-mediated iron transport protein (tonB); G05381; G06810;
KW   G06826; G08565; G015031; G016020; G016021; G030288; G042597.
XX
OS   Helicobacter pylori.
XX
PN   WO9843478-A1.
XX
PD   08-OCT-1998.
XX
PF   01-APR-1998;   98WO-US006371.
XX
PR   01-APR-1997;   97US-00833457.
PR   24-JUN-1997;   97US-00881227.
PR   29-JUL-1997;   97US-00902615.
XX
PA   (INMR ) MERIEUX ORAVAX PASTEUR MERIEUX SERUMS.
PA   (HUMA-) HUMAN GENOME SCI INC.
XX
PI   Kleanthous H,  Al-Garawi A,  Miller C,  Tomb J,  Ocmen RP;
XX
DR   WPI; 1998-542293/46.
DR   N-PSDB; AAX14033.
DR   PC:NCBI; gi3915142.
DR   PC:SWISSPROT; O25899.
XX
PT   New isolated Helicobacter polynucleotides - used to develop products for
PT   the diagnosis, prevention and treatment of Helicobacter infections and
PT   gastrointestinal diseases.
XX
PS   Claim 8; Page 413-415; 2054pp; English.
XX
CC   This sequence represents a Helicobacter pylori GHP0 protein of the
CC   invention. The polypeptides can be used for preventing or treating
CC   Helicobacter infections, and gastroduodenal diseases associated with
CC   these infections, including acute, chronic, and atrophic gastritis, and
CC   peptic ulcer diseases, e.g. gastric and duodenal ulcers. They can also be
CC   used for the production of antibodies. The products can also be used for
CC   detection and diagnosis
CC
CC   Revised record issued on 15-JUN-2007 : Enhanced with precomputed
CC   information from BOND.
XX
SQ   Sequence 285 AA;

  Query Match             100.0%;  Score 285;  DB 2;  Length 285;
  Best Local Similarity   100.0%;  Pred. No. 4.9e-265;
  Matches  285;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MKISPSPRKLSKVSTSVSFLISFALYAIGFGYFLLREDAPEPLAQAGTIKVTMSLASINT 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MKISPSPRKLSKVSTSVSFLISFALYAIGFGYFLLREDAPEPLAQAGTIKVTMSLASINT 60

Qy         61 NSNTKTNAESAKPKEEPKEKPKKEEPKKEEPKKEVTKPKPKPKPKPKPKPKPEPKPEP 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 NSNTKTNAESAKPKEEPKEKPKKEEPKKEEPKKEVTKPKPKPKPKPKPKPKPEPKPEP 120

Qy        121 KPEPKPEPKVEEVKKEEPKEEPKKEEAKEEAKEKSAPKQVTTKDIVKEKDKQEESNKTSE 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 KPEPKPEPKVEEVKKEEPKEEPKKEEAKEEAKEKSAPKQVTTKDIVKEKDKQEESNKTSE 180
```


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Qy        121 KPEPKPEPKVEEVKKEEPKEEPKKEEAKEEAKEKSAPKQVTTKDIVKEKDKQEESNKTSE 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 KPEPKPEPKVEEVKKEEPKEEPKKEEAKEEAKEKSAPKQVTTKDIVKEKDKQEESNKTSE 180
```


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Qy        181 GATSEAQAYNPGVSNEFLMKIQTAISSKNRYPKMAQIRGIEGEVLVSFTINADGSVTDIK 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 GATSEAQAYNPGVSNEFLMKIQTAISSKNRYPKMAQIRGIEGEVLVSFTINADGSVTDIK 240

Qy        241 VVKSNTTDILNHAALEAIKSAAHLFPKPEETVHLKIPIAYSLKED 285
              |||||||||||||||||||||||||||||||||||||||||||||
Db        241 VVKSNTTDILNHAALEAIKSAAHLFPKPEETVHLKIPIAYSLKED 285
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AAW98259
ID   AAW98259 standard; protein; 154 AA.
XX
AC   AAW98259;
XX
DT   31-MAR-1999  (first entry)
XX
DE   H. pylori GHPO 895 protein.
XX
KW   GHPO protein; Helicobacter infection; gastroduodenal disease; gastritis;
KW   peptic ulcer disease.
XX
OS   Helicobacter pylori.
XX
PN   WO9843478-A1.
XX
PD   08-OCT-1998.
XX
PF   01-APR-1998;   98WO-US006371.
XX
PR   01-APR-1997;   97US-00833457.
PR   24-JUN-1997;   97US-00881227.
PR   29-JUL-1997;   97US-00902615.
XX
PA   (INMR ) MERIEUX ORAVAX PASTEUR MERIEUX SERUMS.
PA   (HUMA-) HUMAN GENOME SCI INC.
XX
PI   Kleanthous H,  Al-Garawi A,  Miller C,  Tomb J,  Oomen RP;
XX
DR   WPI; 1998-542293/46.
DR   N-PSDB; AAX13978.
XX
PT   New isolated Helicobacter polynucleotides - used to develop products for
PT   the diagnosis, prevention and treatment of Helicobacter infections and
PT   gastrointestinal diseases.
XX
PS   Claim 8; Page 250-251; 2054pp; English.
XX
CC   This sequence represents a Helicobacter pylori GHPO protein of the
CC   invention. The polypeptides can be used for preventing or treating
CC   Helicobacter infections, and gastroduodenal diseases associated with
CC   these infections, including acute, chronic, and atrophic gastritis, and
CC   peptic ulcer diseases, e.g. gastric and duodenal ulcers. They can also be
CC   used for the production of antibodies. The products can also be used for
CC   detection and diagnosis
XX
SQ   Sequence 154 AA;

Alignment Scores:
Pred. No.:              6.44e-55      Length:         154
Score:                  739.00        Matches:        154
Percent Similarity:     100.0%        Conservative:   0
Best Local Similarity:  100.0%        Mismatches:     0
Query Match:            52.2%         Indels:         0
DB:                     2             Gaps:           0
```

```
Alignment Scores:
Pred. No.:              6.44e-55        Length:         154
Score:                  739.00          Matches:        154
Percent Similarity:     100.0%          Conservative:   0
Best Local Similarity:  100.0%          Mismatches:     0
Query Match:            52.2%           Indels:         0
DB:                     2               Gaps:           0

US-10-553-928-110 (1-795) x AAW98259 (1-154)

Qy        497 GCTTCAGAAGTGGCCCCCTCAGAGGTTTTGTTGGATTCTTCTTGCTTGTCTTTTTCTTTG 438
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 AlaSerGluValAlaProSerGluValLeuLeuAspSerSerCysLeuSerPheSerLeu 20

Qy        437 ACTATATCCTTAGTTGTTACTTGTTTAGGAGCGCTTTTTTCTTTAGCTTCCTCTTTAGCT 378
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         21 ThrIleSerLeuValValThrCysLeuGlyAlaLeuPheSerLeuAlaSerSerLeuAla 40

Qy        377 TCTTCTTTTTTTGGGCTCTTCTTTAGGCTCTTCTTTTTTAACCTCTTCAACTTTAGGCTCA 318
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         41 SerSerPheLeuGlySerSerLeuGlySerSerPheLeuThrSerSerThrLeuGlySer 60

Qy        317 GGCTTAGGCTCGGGTTTTGGTTCAGGTTTGGGTTCAGGCTTAGGTTTTGGTTTTGGCTTT 258
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 GlyLeuGlySerGlyPheGlySerGlyLeuGlySerGlyLeuGlyPheGlyPheGlyPhe 80

Qy        257 GGCTTGGGTTTAGGCTTAGGTTTAGGCTTTGTAACCTCCTTTTTGGGTTCTTCTTTTTTT 198
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         81 GlyLeuGlyLeuGlyLeuGlyLeuGlyPheValThrSerPheLeuGlySerSerPhePhe 100

Qy        197 GGCTCTTCTTTCTTGGGTTTTTCTTTAGGCTCTTCTTTGGGTTTAGCCGACTCAGCATTA 138
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        101 GlySerSerPheLeuGlyPheSerLeuGlySerSerLeuGlyLeuAlaAspSerAlaLeu 120

Qy        137 GTCTTTGTATTGGAATTAGTGTTGATGCTGGCTAAACTCATGGTAACCTTAGTGGTCCCG 78
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 ValPheValLeuGluLeuValLeuMetLeuAlaLysLeuMetValThrLeuValValPro 140

Qy         77 GCTTGCGCTAAAGGCTCTGGGGCGTCTTCGCGCAGTAAAAAA 36
              |||||||||||||||||||||||||||||||||||||||||
Db        141 AlaCysAlaLysGlySerGlyAlaSerSerArgSerLysLys 154
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Instant claims 38 WO98/43478, Kleanthous et al disclose an isolated protein antigen of Helicobacter pylori that is immunoreactive with a monospecific hyperimmune antiserum (see page 60, line 10), the antigen sharing 100% identity to an amino acid sequence of instant SEQ ID NO:288, over the 285 amino acids of SEQ ID No 288 (see Kleanthous sequence SEQ ID NO

228, referred to as GHPO894; see page 16, lines 10-11; claims 8-20 (pharmaceutical composition) and 23 (adjuvant), pages 413-415).

Additional embodiments are disclosed that include polypeptide antigens without a signal sequence and fragments thereof (see page 36, lines 23-24), as well as an Helicobacter pylori antigen which shares 100% identity over 154 amino acids of instant SEQ ID NO 288 (see Kleanthous sequence SEQ ID NO 118,), which is a fragment antigen of instant SEQ ID NO 288.

The fragments of the antigens of Kleanthous et al include amino acid sequences of at least 12, at least 20, at least 50, at least 75, and at least 100 amino acids of the disclosed Helicobacter pylori polypeptide antigens for the purpose of maintaining antigenicity (see page 42, lines 24-25 and page 43, lines 1-2).

(**Instant claims , 49-50, 53-54**) Pharmaceutical compositions comprising the polypeptide antigens also formulated (see page 43, lines 10-11 and lines 16-27) together with an adjuvant (see page 44, lines 24-26 "fused to a polypeptide having adjuvant activity"), and may be in administered together with a cytokine, IL-2 and IL-12 adjuvant (immunostimulatory adjuvants to enhance the immune response, see page 53, lines 3-6 and page 50, lines 5-19), or Freund's complete or incomplete adjuvant (see page 83, lines 20-25) or aluminum hydroxide (aluminum adjuvants, see page 63 and 70).

Kleanthous et al still anticipates the instantly claimed invention as now claimed. Since the Office does not have the facilities for examining and comparing applicant's protein with the protein of the prior art, the burden is on applicant to show a novel or unobvious difference between the claimed product and the product of the prior art (i.e., that the protein of the prior art does not possess the same functional characteristics of the claimed protein). See In re Best, 562

F.2d 1252, 195 USPQ 430 (CCPA 1977) and In re Fitzgerald et al., 205 USPQ 594

Claim Rejections - 35 USC § 103

29. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

30. Maintained, The rejection of claims 50 (additional species), 51 and 52 under 35 U.S.C. 103(a) as being unpatentable over Kleanthous et al, as applied to claims 38-46, 49-50 (2 species), 53-54, in view of WO02/059148 is traversed on the grounds that Kleanthous et al does not provide an enabling disclosure of the claimed pharmaceutical compositions.

31. It is the position of the examiner that Kleanthous et al claims the same protein as Applicant's (claim 8, page 2036) and also claims the protein in a composition (see claims 8-20 and 23).

32. Kleanthous et al describe how to make immunogenic compositions (antibodies immunoreactive with the proteins) that comprise the claimed protein product and formulate them into compositions that comprise an adjuvant/immunostimulatory substance (claim 23). Kleanthous et al in view of WO02/059148 still obviate the claimed compositions of amended claims 50, 51-52 for reasons of record and response set forth herein.

33. Kleanthous et al teach and show the formulation of compositions that comprise Helicobacter pylori immunogenic antigens with an immunostimulatory substance(s), the immunostimulatory substances including Freund's complete or incomplete adjuvant, but differs from the instantly claimed invention by failing to show the immunostimulatory substance/adjuvant(s) to include a polycationic polymer, an immunostimulatory deoxynucleotide (ODN), a peptide containing at least two LYsLeuLys motifs, a neuroactive compound, or alum.

34. WO02/059148 teach immunostimulatory substances (see page 12, lines 1-6, paragraphs 1-5) including Freund's complete or incomplete adjuvant as taught by Kleanthous et al , as well as polycationic polymer, an immunostimulatory

deoxynucleotide (ODN) (see page 14, paragraph 1) , a peptide containing at least two LYsLeuLys motifs (see page 13, paragraph 4), a neuroactive compound, and alum (see page 12, lines 1-6) in an analogous art for the purpose of formulating compositions that comprise adjuvant(s) and bacterial antigen (see page 9, line 1, lines 8-9 and paragraph 4) for stimulation of hyperimmue serum (see WO02'page 14, paragraph 4, second half of paragraph).

35. It would have been obvious to the person of ordinary skill in the art at the time the invention was made to substitute the adjuvant(s) of WO02/059148 for the adjuvant(s) of Kleanthous et al because WO02/059148 teach and show immunostimulatory substances that are readily produced chemically, synthetically, recombinantly or derived from natural sources (see WO02'page 12, paragraph 3; page 13, paragraph 4), and serve to activate or down regulate the adaptive immune system mediated by dendritic cells and antigen presenting cells (see page 13, lines 1-3) to insure stimulation of the desired hyperimmune serum response (see page 14, paragraph 4, second half of paragraph).

36. In the absence of a showing of unexpected results, the person of ordinary skill in the art would have been motivated by the reasonable expectation of success of obtaining compositions that comprise adjuvant(s) to include a polycationic polymer, an immunostimulatory deoxynucleotide (ODN), a peptide containing at least two LYsLeuLys motifs, a neuroactive compound, or alum as the immunostimulatory substance because WO02/059148 teach these immunostimulatory substances to function as adjuvants (see WO02' page 12, paragraph 2 "WO97/30721 and WO00/38528; page 13 paragraph 4, PCT/EP01/12041; page 14, paragraphs 1 and 2 WO01/93905 and WO01/24822) for enhancing the stimulated immune response resulting in the desired hyperimmune serum (see WO02', page 14, paragraph 4, second half of paragraph).

37. Kleanthous et al in view of WO02/059148 obviate the instantly claimed invention as now claimed.

Conclusion

38. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

39. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GINNY PORTNER whose telephone number is (571)272-0862. The examiner can normally be reached on flextime, but usually M-F, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Mondesi can be reached on 571-272-0956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ginny Portner/
Examiner, Art Unit 1645
January 20, 2009

/Robert B Mondesi/
Supervisory Patent Examiner, Art Unit 1645